

What is claimed is:

1. A reduction gear mechanism comprising at least first and second axes which extend parallel to each other;

wherein one of said first and second axes rotatably

5 supports at least two gears arranged one after the other in the axial direction thereof, said at least two gears being independently rotatable with respect to each other, and the other of said first and second axes rotatably supports at least one gear, and

10 wherein said gears provided on said first and second axes are engaged with each other in such a manner that said gear supported on one of said first and second axes successively and alternatively engages with said gear supported on the other of said first and second axes.

15 2. The reduction gear mechanism according to claim 1, wherein said each of said first and second axes rotatably supports two gears arranged one after the other in the axial direction thereof.

20 3. The reduction gear mechanism according to claim 1, wherein each of said gears supported by said parallel central axes is a double gear having a larger gear portion and a smaller gear portion, the smaller gear portion of said double gear supported by one of said central axes engaging

with the larger gear portion of said double gear supported by the other central axis.

4. The reduction gear mechanism according to claim 3, wherein in each of said double gears, the larger gear 5 engages with a preceding gear and the smaller gear engages with a succeeding gear, with respect to the direction of driving transmission.

5. The reduction gear mechanism according to claim 1, wherein said gears supported by the central axes are 10 identical to each other.

6. The reduction gear mechanism according to claim 1, wherein said reduction gear mechanism is arranged in a zoom lens barrel.

7. The reduction gear mechanism according to claim 15 6, wherein said zoom lens barrel comprises:

a bi-directional motor;  
a first sub-lens frame and a second sub-lens frame for supporting a first sub-lens group and a second sub-lens group, respectively, said first and second sub-lens groups 20 functioning optically in a mutually close position and in a mutually distant position, in the optical axis direction; and

a sub-lens group driving mechanism which moves said

first and second sub-lens frames to said mutually close and distant positions, and moves said first and second sub-lens frames integrally in the optical axis direction in said mutually close and distant positions, as said  
5 bi-directional motor is actuated;

wherein said reduction gear mechanism is provided between said bi-directional motor and said sub-lens group driving mechanism in said zoom lens barrel.

8. A reduction gear mechanism comprising:

10 at least two gear supporting axes which extend parallel to each other; and

at least three gears, a first gear and a third gear thereof being rotatably supported on said first gear supporting axis at different positions in an axial direction,  
15 said first and third gears being independently rotatable with respect to each other, and a second gear thereof being rotatably supported on said second gear supporting axis, wherein said first gear engages with said second gear, and said second gear engages with said first gear and said third gear.  
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9. The reduction gear mechanism according to claim 8, further comprising a forth gear which is rotatably supported on said second gear supporting axis at a different

position in the axial direction with respect to said second gear, said forth gear being independently rotatable with respect to said second gear, and wherein said third gear engages with said second gear and said fourth gear.